

Abstract

Methods and apparatus for encoding codewords which are particularly well suited for use with low density parity check (LDPC) codes and long codewords are described. The described methods allow encoding graph structures which are largely comprised of multiple identical copies of a much smaller graph. Copies of the smaller graph are subject to a controlled permutation operation to create the larger graph structure. The same controlled permutations are directly implemented to support bit passing between the replicated copies of the small graph. Bits corresponding to individual copies of the graph are stored in a memory and accessed in sets, one from each copy of the graph, using a SIMD read or write instruction. The graph permutation operation may be implemented by simply reordering bits, e.g., using a cyclic permutation operation, in each set of bits read out of a bit memory so that the bits are passed to processing circuits corresponding to different copies of the small graph.